

AEROGEL AND METALLIC COMPOSITES

ABSTRACT

A fuel cell electrode catalyst comprises a supporting structure made of a metallic composition of carbon aerogel wherein the carbon aerogel has a surface area of greater than about 400 square meters per gram (m^2/g) and a pore size of greater than about 4 nm and up to about 50nm. The crystals of a metal dispersed on the supporting structure are about 1 nm to about 3 nm in diameter. A membrane electrode assembly for a fuel cell comprises a solid electrolyte membrane and catalyst paste, slurry, or ink, disposed on the solid electrolyte membrane wherein the catalyst paste, slurry, or ink comprises a metallic composition of carbon aerogel in powder form and unagglomerated solid electrolyte and solvent dispersed within the carbon aerogel structure.